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CLAIMS

USSN 60/401,185
Exhibit A.

What is claimed is:

- 1 1. A method comprising the steps of:
2 providing a liquid rubber that has multiple sites of unsaturation;
3 chemically modifying the liquid rubber's sites of unsaturation to yield
4 alternate functionalities and thereby create a functionalized liquid rubber;
5 and
6 terminating a metallic or organometallic-initiated living polymer with
7 the functionalized liquid rubber.
- 1 2. The method of claim 1, wherein said liquid rubber has been synthesized
2 with at least one conjugated diene monomer.
- 1 3. The method of claim 1, wherein said liquid rubber is polybutadiene.
- 1 4. The method of claim 1, wherein said metallic or organometallic-initiated
2 living polymer is a polymeric organo-lithium.
- 1 5. The method of claim 1, wherein said metallic or organometallic-initiated
2 living polymer is poly(styryl)lithium or poly(butadienyl)lithium.
- 1 6. The product produced by the process of claim 1.
- 1 7. The method of claim 1 wherein said alternate functionalities are selected
2 from the group consisting of epoxide, maleic anhydride, and alkoxysilane
3 functional groups.
- 1 8. The method of claim 1 further comprising the step of performing hydrolysis
2 on the alternate functionalities to yield hydroxy or carboxy functional
3 groups.

- 1 9. The method of claim 1, wherein said liquid rubbers are linear or branched.
- 1 10. A synthetic polymer with at least one highly-functionalized liquid-rubber
2 chain-end moiety.
- 1 11. The synthetic polymer of claim 10, wherein said synthetic polymer is a
2 polydiene.
- 1 12. The synthetic polymer of claim 10, wherein said synthetic polymer is
2 selected from the group consisting of polystyrene, polybutadiene, and
3 polyisoprene.
- 1 13. The synthetic polymer of claim 10, wherein said liquid rubber is
2 polybutadiene.
- 1 14. The synthetic polymer of claim 10, wherein said highly-functionalized
2 liquid-rubber chain-end moieties comprise functional groups selected from
3 the group consisting of: maleic anhydride groups, epoxide groups,
4 hydrolyzed maleic anhydride groups, and hydrolyzed epoxide groups.
- 1 15. A star polymer comprising a highly-functionalized liquid-rubber core and at
2 least one polymeric arm prepared by anionic polymerization.
- 1 16. The star polymer of claim 15, wherein said polymeric arm is polystyrene,
2 polyisoprene, or polybutadiene.
- 1 17. The star polymer of claim 15, wherein said core is polybutadiene.